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# Non-Compliance Tracking and Trending at LLNL

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## INTRODUCTION

The Criticality Safety Section at LLNL has a formal set of procedures to guide the administrative and technical work of the section. Two of these procedures, "Response to a Criticality Safety Infraction" and "CSG Criticality Safety Non-Compliance and Audit Tracking System," provide combined guidance for response, tracking, and trending for procedural non-compliances. Combined with a database, this system provides a framework to systematically respond to, document, track and trend criticality safety non-compliances, as well as audit findings.

## DESCRIPTION

The first procedure, "Response to a Criticality Safety Infraction," provides guidance to the criticality safety staff for responding to a potential criticality safety non-compliance (infraction). It provides a response process from the initial program or facility contact to the final report. (See Figure 1.) It establishes responsibilities for the criticality safety staff. It provides guidance for preparing required documentation after a criticality safety non-compliance has occurred. Documentation includes a Criticality Safety Infraction Assessment followed by a Criticality Safety Infraction Report. The Criticality Safety Infraction Assessment documents the incident, as well as the barrier assessment (See Figure 2), safety margin assessment and trending assessment that result in a criticality safety severity index. (See Figure 3.) The severity index measures the severity of the non-compliance and indicates the minimum reporting level.

The second procedure, "CSG Criticality Safety Non-Compliance and Audit Tracking System," describes a non-compliance and audit tracking system. It establishes responsibilities of the criticality safety staff and requirements for the tracking system. It establishes a database format, which is tied to the reports described above. For criticality safety non-compliances the tracking system database includes fields for the following information: Date of occurrence, time of occurrence, building, room or area, workstation, document numbers and dates of the Criticality Safety Infraction and Assessment Report and the Criticality Safety Infraction Report, the Severity Index Number, and Criticality Safety Memorandum Number (See Figure 4). The database also includes fields for narrative descriptions of the incident, root causes, corrective actions, and implementation status of corrective actions. For audit findings, the tracking system database includes fields for: the facility audited, date of audit, date of audit report, and audit document number. There are also fields for each audit finding which include: a tracking number, description, status and final closeout.

## SUMMARY

This system of procedures and database provides a framework to systematically document, track and trend criticality safety non-compliances, as well as audit findings.

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Figure 1. Flowchart of the Process for a Criticality Safety Infraction Assessment.

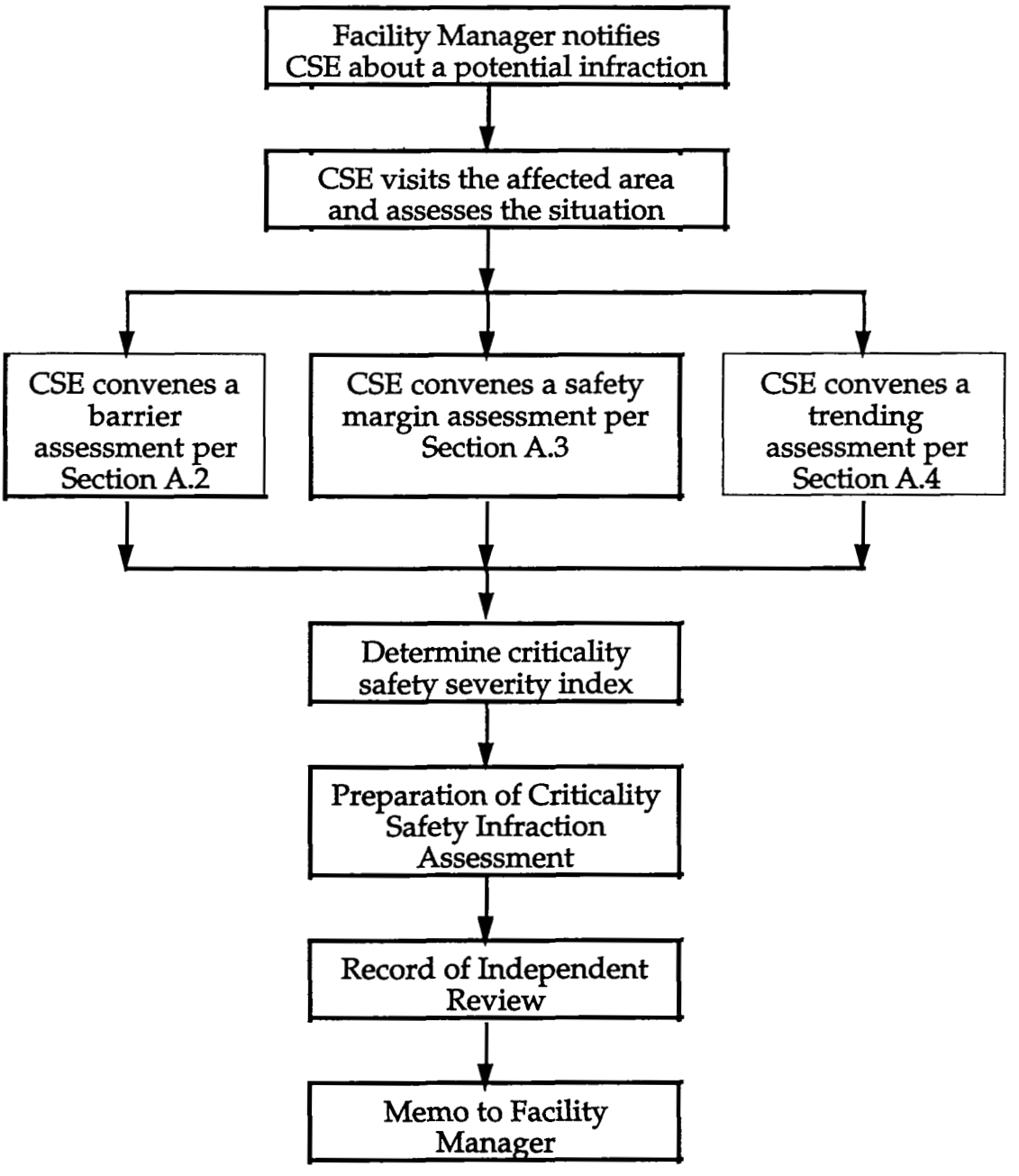

Figure 2. Barrier Assessment

| Barrier Parameters | Barriers Formally Claimed (BFC) (1 = yes; 0 = no) | Barriers Lost or Compromised (BLC) (1 yes; 0 = no; 0.5 = compromised) |
|---|---|---|
| Neutronic couplng (spacing) | | |
| Poison | | |
| Density | | |
| Reflection | | |
| Shape (Geometry) | | |
| Volume | | |
| Chemical/mixture concentration | | |
| Enrichment | | |
| Moderation | | |
| Mass | | |
| Other | | |
| Other | | |
| Sum | (BRC = ) | (BLC = ) |

Figure 3. Severity Index and Reporting Levels for Non-Compliance with Criticality Safety Controls.

| Severity Index | Minimum Reporting Level | Description of Condition |
|---|---|---|
| 1 | Emergency | A nuclear criticality accident has occurred. |
| 2 | Unusual | Violation of the double contingency criticality specification such that no valid controls are available to prevent a criticality accident. |
| 3 | Off-Normal | Any nuclear criticality safety non-compliance that results in a loss of contingency such that only one valid criticality control remains in place. |
| 4 | Internal | Of two contingencies, one contingency is unaffected, and one other contingency is substantially intact. Of several contingencies, failure of a control, but at least two or more claimed contingencies remained unchallenged. |

Figure 4: CSG Non-Compliance Tracking System Database Form